Amendments to the Claims

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of claims:

1-33. (Canceled)

34. (New) A noise reduction system connected to at least two input channels for receiving input signals that have substantially identical program content but differing instantaneous noise transients, whereby the system selects the input signal that has the lowest instantaneous noise transient level, the system comprising:

a low frequency attenuator connected to the at least two input channels for equally attenuating input signals whose frequencies are below a predetermined frequency threshold for providing attenuated input signals;

a switcher coupled to the low frequency attenuators for transmitting an attenuated input signal that has the least amount of instantaneous transient noise as a transmitted signal; and

a low frequency restorer configured to mix the transmitted signal from the switcher with an inverse signal derived from the input signals for providing a mixed signal whose frequencies are not attenuated with respect to the input signals.

35. (New) The system of claim 34, and further including a first summer for summing at least two input signals from which the low frequency restorer is configured to derive the inverse signal.

36. (New) The system of claim 35, and further including a second summer for summing at least two attenuated input signals, wherein the switcher is configured to transmit the attenuated input signal and/or the signal from the second summer having the least amount of instantaneous transient noise to the low frequency restorer.

37. (New) The system of claim 34, and further including a summer for summing at least two attenuated input signals, wherein the switcher is configured to transmit the attenuated input signal and/or the signal from the summer having the least amount of instantaneous transient noise to the low frequency restorer.

38. (New) The system of claim 34, and further including an inverter configured to invert the phase of an input signal with respect to another input signal.

39. (New) The system of claim 34, and further including a balancer configured to vary the gain of one or more input signal by a predetermined amount such that the program content of the input signals are of substantially equal magnitude.

40. (New) The system of claim 34, wherein there are two input signals, the switcher being configured to transmit both attenuated input signals when the instantaneous levels of the input signals are of the same polarity, and to transmit the attenuated input signal having the least amount of instantaneous transient noise when the instantaneous levels of the input signals are of opposite polarity.

41. (New) The system of claim 34, and further comprising a blanker configured to remove instantaneous transient noise that is present in the mixed signal, the blanker comprising:

a filter for subdividing the frequencies included in the mixed signal into at least two ranges of frequency signals to provide at least two filter signals;

a noise detector coupled to each of the at least two filter signals and configured to detect instantaneous transient noise as an instantaneous level of signal that is greater than the average signal level by a predetermined proportion to the average level in the respective filter signal;

a switch coupled to each detector to provide the respective filter signal to a blanker output terminal when transient noise is not being detected by the respective detector, and to

deny filter signal to the output terminal whose amplitude is greater than the average signal level by a predetermined proportional amount, when transient noise is being detected by the respective detector.

42. (New) The system of claim 41, wherein the filter subdivides the mixed signal into a low frequency filter signal that is coupled to a low frequency noise detector and a low frequency switch, and a comparatively high frequency filter signal that is coupled to a high frequency noise detector and a high frequency switch..

43. (New) The system of claim 42, wherein the low frequency switch is coupled to the high frequency noise detector such that the low frequency switch is prevented from decoupling low frequency filter signal to the output terminal except when the high frequency detector has concurrently detected a noise transient in the high frequency signal.

44. (New) The system of claim 43, wherein the duration of the prevention is a predetermined period of time.

45. (New) The system of claim 43 wherein the low frequency noise detector is coupled to the high frequency noise detector such that the high frequency detector is decoupled from the high frequency filter signal when a noise transient is detected by the low frequency detector.

46. (New) The system of claim 45, wherein the high frequency detector is decoupled from the high frequency filter signal for a predetermined period of time when instantaneous transient noise is detected by the low frequency detector.

47. (New) A system for reducing noise in an input signal, including a blanker configured to remove instantaneous transient noise that is present in the input signal, the blanker comprising:

a filter for subdividing the frequencies included in the input signal into at least two ranges of frequency signals to provide at least two filter signals;

a noise detector coupled each of the at least two filter signals and configured to detect instantaneous transient noise as an instantaneous level of signal that is greater than the average signal level by a predetermined proportion to the average level in the respective filter signal;

a switch coupled to each detector to provide the respective filter signal to a blanker output terminal when transient noise is not detected by the respective detector, and to deny filter signal to the output terminal whose amplitude is greater than the average signal level by a predetermined proportional amount, when transient noise is detected by the respective detector.

48. (New) The system of claim 47, wherein the filter subdivides the mixed signal into a low frequency filter signal that is coupled to a low frequency noise detector and a low frequency switch, and a comparatively high frequency filter signal that is coupled to a high frequency noise detector and a high frequency switch..

49. (New) The system of claim 48, wherein the low frequency switch is coupled to the high frequency noise detector such that the low frequency switch is prevented from decoupling low frequency filter signal to the output terminal except when the high frequency detector has concurrently detected a noise transient in the high frequency signal.

50. (New) The system of claim 49, wherein the duration of the prevention is a predetermined period of time.

51. (New) The system of claim 49 wherein the low frequency noise detector is coupled to the high frequency noise detector such that the high frequency detector is decoupled from the high frequency filter signal when a noise transient is detected by the low frequency detector.

52. (New) The system of claim 51, wherein the high frequency detector is decoupled from the high frequency filter signal for a predetermined period of time when instantaneous transient noise is detected by the low frequency detector.

53. (New) The system of claim 47 and further including a continuous noise suppressor coupled to the output terminal of the blanker and configured to remove noise from the program component of the blanker output signal, the continuous noise suppressor comprising:

a differentiating stage coupled to the blanker output configured to detect a noise component in the blanker output signal and to produce a differentiated output signal;

a signal detector coupled to the blanker output configured to detect the program component of the blanker output signal and to produce a program component signal;

a divider stage configured to divide one of the differentiated output signal and program component signal by the other to generate a ratio signal;

a variable filter having a variable cut-off frequency responsive to the ratio signal to filter frequencies from the blanker output signal in accordance with the selected cut-off frequency.

54. (New) The system according to claim 53, wherein the differentiation stage includes double differentiation.

55. (New) The system according to claim 53, wherein the signal detector includes a band-pass filter for transmitting a pre-selected range of frequencies in the blanker output signal.

56. (New) The system according to claim 53 wherein the ratio signal is unresponsive to blanker output signals that are of less than a predetermined duration.

57. (New) The system according to claim 56, wherein the predetermined duration is approximately 1 millisecond.

58. (New) The system according to claim 53, and further including a user adjustable DC voltage source whose output voltage is combined with the ratio signal to produce an adjustable minimum cut-off frequency.

59. (New) The system according to claim 58, and further including a user adjustable gain stage for varying the combined output voltage and ratio signal to produce an adjustable maximum cut-off frequency.

60. (New) The system according to claim 53, and further including a user adjustable gain stage for varying the ratio signal to produce an adjustable maximum cut-off frequency.

61. (New) The system according to claim 53, and further including a meter electrically connected to the ratio signal and configured to visually display the cut-off frequency.

62. (New) The system according to claim 53, wherein the filter includes at least one single pole filter.

63. (New) A continuous noise suppressor configured to remove a noise component from the program component of an input signal, the continuous noise suppressor comprising:

a differentiating stage configured to detect a noise component in the input signal and to produce a differentiated output signal;

a detector coupled to the input signal to detect the program component and to produce a program component signal;

a divider stage configured to divide one of the differentiated output signal and program component signal by the other to produce a ratio signal;

a filter having a cut-off frequency responsive to the ratio signal to filter frequencies from the input signal in accordance with the selected cut-off frequency.

64. (New) The system according to claim 63, wherein the differentiation stage includes double differentiation.

65. (New) The system according to claim 63, wherein the detector includes a band-pass filter for transmitting a pre-selected range of frequencies in the input signal.

66. (New) The system according to claim 63 wherein the ratio signal is unresponsive to blanker output signals that are less than a predetermined duration.

67. (New) The system according to claim 66, wherein the predetermined duration is approximately 1 millisecond.

68. (New) The system according to claim 63, and further including a user adjustable DC voltage source whose output voltage is combined with the ratio signal to produce an adjustable minimum cut-off frequency.

69. (New) The system according to claim 68, and further including a user adjustable gain stage for varying the combined output voltage and ratio signal to produce an adjustable maximum cut-off frequency.

70. (New) The system according to claim 63, and further including a user adjustable gain stage for varying the ratio signal to produce an adjustable maximum cut-off frequency.

71. (New) The system according to claim 63, and further including a meter electrically connected to the ratio signal and configured to visually display the cut-off frequency.

72. (New) The system according to claim 63, wherein the filter includes at least one single pole filter.

73. (New) The system according to claim 63, and further including a switcher configured to provide the input signal, wherein the input signal is selected by the switcher from at least two input channels.